

2002 PATUXENT NWR WATERBIRD CENSUS

Dec. 2001 - Dec. 2002

Intensive surveys of waterbird use of wetland areas on the Refuge have been conducted since 1997. The surveys cover 53 wetland units encompassing approximately 560 acres, plus segments of the Patuxent and Little Patuxent Rivers. The 1998 report included an in-depth discussion of the units. This report compares results for the past six years. A common theme throughout the year was continuation of the drought. North Tract was particularly hard hit, especially with the drainage of the two most important water areas, Lake Allen and Rogue Harbor. Tables for the most common waterbird species by season and Tract (North, Central, and South) are attached. Purposes and methodology did not change.

Weather

The drought recommenced in October 2001 and continued through the Winter Quarter to become the second driest winter on record. Water levels in most units were down by at least 1/3 at the beginning of the winter quarter. Lake Allen was drained in mid-December for construction of the new dam. Rogue Harbor was drained in mid-March by removing the beaver dam. March finally brought above normal rainfall and most units were full by mid-May. Drought returned in summer with essentially no rain between mid-June and mid-July. Late July brought above average rainfall, but August was almost completely dry. By August most units were dry or nearly so. September rains were early and late but insufficient to impact water levels. With two inches of rain in late October, most units began to refill and were 1/3 to 2/3 full at the end of the Fall Quarter. As usual, North Tract units were most heavily impacted and most were low at the end of the year. Central Tract and large units on South Tract were full.

Winter ice conditions were comparable to the last two years with ice from late December to mid-January and again through February.

The Lake Allen dam construction was completed in mid-August, but there was no effort to raise water levels until the fall to allow growth of aquatic annuals. One set of boards was put back in at the end of the year. Beaver started rebuilding the Rogue Harbor dam but quit after raising water levels to just outside the channel. Boards had not been put back into the green-tree units or Mabbott Pond at the end of the year.

Results

Waterfowl

Total waterfowl days-use in 2002 dropped to 267,600, the second lowest level since intensive counts began in 1997. The low in was 2000 with 252,000. Peak years were 1998 and 1999 when we recorded 304,000 days. (See tables) The combination of drought and drainage of Lake Allen and Rogue Harbor caused a collapse of wood duck use. For the second time, mallard use was higher than wood duck use.

Canada Goose

Use has been essentially flat for the last three years at about 135,000, well below the 1999 peak of 194,000. The continued decline in the breeding population was reflected in the low Spring count. The fall count was a record low. A lead shot die-off continued for the third year. About 15 to 20 carcasses have been found each year. We have not been able to locate the source of the problem.

Wood Duck

After a substantial increase in 2001, populations again fell to about 33,000 use days, the second lowest total behind 29,000 in 1999. The peak was 49,500 in 1997. The drainage of Rogue Harbor and Lake Allen particularly affected North Tract use. Use fell to 9300 days, well below the previous low of 10,700 in 1999. The peak North Tract use was almost 20,000 in 1997. Decline in use was across the board, all four quarters and all three Tracts.

Mallard

Mallard use reached a record high of 37,300. Use has gradually increased ever since counts began. This year's high was due to a big jump during the winter quarter. The 19,300 exceeded the next highest figure of 15,300 in 2000. These winter increases were due to the open winters of the past three years. Spring and summer counts were record lows due to collapse of the breeding population and drought.

Black Duck

After declining every year from the 1998 peak of 13,000 to 8,000 last year, black duck counts rebounded to 10,500 in 2002. As with mallards, the increase was entirely due to an upsurge of winter use to 6660, well above the second record high of 5800 in 1998. Summer use is now almost nonexistent. Fall use was a record low of 2520, probably due to the drought. Use by mallards and black ducks is heavily concentrated on North and Central Tracts.

Hooded Merganser

Use by hooded mergansers has been increasing almost every year. In 2002 a new high of 9600 days was reached, slightly above the 9500 of 2001. The low was 6150 in 1997. As with other migrants, most of the increase was due to the open winter. Winter use was 5100, as opposed to 4000 days in most previous winters. The vast bulk of the use was on Central Tract, almost 7,000 days.

Ring-neck Duck

This is the only abundant entirely migrant duck on Patuxent. Due to the reflooding of Cash Lake and a late freeze-up, use increased to a new record of 38,300 days. The next high was 36,600 in 1997. The low was 18,400 in 1999. Winter use was 20,600, by far the highest since counts began. The next high was 16,000 in 1998. The low was 6000 in 1999 when Cash Lake was drained.

American Green-wing Teal

This is the only other fairly common migrant-only duck. Use varies considerably from year to year. They prefer shallow recently flooded impoundments. The 2002 count was 1780, which is about average. Use is also concentrated in the winter quarter, at 1000 days in 2002. Fall use was much below average, only 420 days, a record low. This was probably due to the drought.

Other Waterfowl

Small numbers of other waterfowl were recorded. These included ruddy ducks, gadwall, American widgeon, shoveler, pintail, bufflehead, lesser scaup, canvasback, common goldeneye, and blue-winged teal. One snow goose and three tundra swans were recorded. Total use was about 1100 days, which has been about average the last three years. Ruddy ducks were fairly common from 1997 to 1999, averaging 1500 days use in the winter quarter. Since then use has declined to below 700 days.

American Coot

Coot-use has almost disappeared. From a peak of 900 days in 1997, use fell to 20 days in 2002.

Pied-billed Grebe

Use by this species fell to a record low of 580 days. The next low was 770 in 2001. The high was 1575 in 2000. Use is concentrated in the Spring Quarter.

Belted Kingfisher

This species uses every unit on the refuge when there is water. It is almost always solitary except occasionally during the breeding season. After declines during the drought years, use rose back to a new high of 1900 use-days. There has been a gradual annual increase ever since the 1997 low of 1550 days use.

Shore Birds

The ideal drought conditions during the 1998 fall migration exposed substantial shoreline areas, which led to shorebird use reaching an all time peak of 16,600 days in 1998. The less ideal conditions of 1999 (Sept. hurricane rains) saw use decline to 12,400 days-use and a substantial drop in the unusual species recorded in 1998. Use continued to decline to a little over 5000 in 2001 and then increased slightly to 5900 in 2002. Killdeer accounts for about 1/2 of the total. Common snipe accounted for most of the 2002 increase, from 250 in 2001 to 945 days in 2002.

Wading Birds

Blue Heron

Use peaked in 1998 at over 7700 days due to a very high summer count, primarily a large concentration of birds on Knowles 1 when it was being drawndown. Use declined to 5300 in 2000 and then climbed back to 6200 in 2001 and 6340 in 2002. They are generally solitary and are found on almost every unit throughout the year unless drained or frozen.

Green Heron

Counts dropped to a record low of 1600 days. The record high was 2900 in 1999. Green herons are gone by the end of October and return in early April. They favor wooded units and were equally distributed between North and Central Tracts. Very few were found on South Tract. They have become increasingly common in the Spring. They are almost always solitary.

Great Egret

They are mostly present in late summer and early fall, occasionally in spring. Egrets concentrate on units in the process of being drawn down. The 960 days use in 2002 were about average. They peaked at almost 3800 in the drought year of 1998.

Other Waders

Other waders included Little Blue Herons (all immatures), American Bittern, Cattle Egret, Snowy Egret, and Yellow-crowned Night Heron.

Gulls and Terns

With closure of the Bowie landfill in December 2000, gull use stopped. From a peak of 90,000 days-use in 1999, use fell to 64,000 in 2000 and close to zero in 2001. We will not include them in future tables unless we get a new landfill in the vicinity. This was the first year without any records of terns.

Other Waterbirds

We recorded one common moorhen, seven double-crested cormorants and one common loon.

Raptors

Bald Eagle

Although there has been no known nesting on the Refuge since 1998, use increased from 133 days in 1999 to 224 days in 2000 and 259 in 2001 and 2002. The peak was 364 days in 1998 when the nesting adults were frequently seen on Lake Redington. Most observations now are of immatures on Central Tract.

Osprey

Use remained steady at about 100 use-days per year. Records of hacked birds are not included.

Northern Harrier

We had a record high seven observations in 2002. There were three records in 2000 and five in 2001.

Red-shouldered Hawk

The nesting population appears to be stable at about 20 pairs, 13 on North Tract, 6 on Central Tract and one on South Tract.

Red-tailed Hawk

The nesting population apparently increased from nine pairs in 1999 to 13 in 2000. We recorded eight pairs on North Tract, three on Central Tract and two on South Tract.

Pileated Woodpecker

Records of this species are kept when seen in impoundments. We have recorded them on eleven impoundments and the rivers.

Mammals

Mammals recorded include beaver, muskrat and otter.

Beaver

Beaver respond quickly to refilling of the water units. They disappear during drought, but quickly reappear. They continue to be a serious problem on artificial impoundments, particularly on Central Tract. They have raised water levels so high on Merganser Pond that the islands will soon be eroded away.

Muskrat

Numbers remain very low, much below populations on the Refuge before beaver arrived in 1973. There were only two records in 20002, Rogue Harbor and Midway.

Otter

In 2001, one was seen on Rogue Harbor and a pair on the Knowles units. One was killed in a beaver trap on Knowles 3 in the winter of 2001. None have been seen since.

WATERBIRD DAYS USE BY QUARTER 1997-2002
PATUXENT NATIONAL WILDLIFE RESEARCH REFUGE

SPECIES	WINTER								
	97	98	99	00	01	02			
CAGO	25571	53837	61516	32165	33166	36890			
WODU	581	637	581	1106	1008	364			
MALL	6792	11459	13895	15309	11298	19331			
ABDU	2237	5838	4823	4788	3927	6664			
HOME	3073	4326	4389	4165	4032	5082			
RNDU	15875	16149	5880	11060	9625	20580			
AGWT	-----	7	280	1736	98	973			
RUDU	----	560	980	364	7	35			
OTHERS	84	336	185	238	70	448			
TOTAL WATER FOWL	54214	93156	92529	70931	63231	90367			
AMCO	21	---	14	-----	56	-----			
PBGR	49	63	91	168	14	98			
BEKI	196	238	301	126	231	371			
KILL	644	3283	1715	602	231	1449			
SOSA	-----	105	----	-----	----	---			
SPSA	----	----	----	-----	-----	-----			
YELE	----	----	42	-----	-----	-----			
COSN	-----	231	532	133	7	511			
OTHERS	----	7	----	-----	----	-----			
TOTAL SHORE	644	3619	2247	735	238	1500			

WINTER - CONT.

SPECIES	97	98	99	00	01	02			
GBHE	252	441	721	399	343	861			
GNHE	-----	-----	-----	-----	-----	-----			
LBHE	-----	-----	-----	-----	-----	-----			
GREG	-----	-----	-----	-----	-----	-----			
TOTAL WADER	259	469	721	399	343	861			
BAEA	7	42	63	28	21	98			

SPRING

SPECIES	97	98	99	00	01	02			
CAGO	40624	39991	53305	31857	33047	31787			
WODU	13797	14714	12082	7350	9926	9009			
MALL	8988	9395	13895	9394	12047	8547			
ABDU	1351	1694	1232	1764	1099	1134			
HOME	1855	2870	2926	1939	2989	2611			
RNDU	10087	11116	5936	7007	9492	6293			
AGWT	42	658	546	945	350	385			
RUDU	-----	7	14	----	7	---			
OTHER	560	854	168	322	231	245			
TOTAL WATER FOWL	77266	81320	90104	60578	69762	60011			

SPRING - CONT.

	97	98	99	00	01	02		
AMCO	735	21	14	147	161	21		
PBGR	665	112	406	980	483	350		
BEKI	210	413	308	385	420	287		

KILL	602	1295	1519	812	420	245		
SOSA	315	252	588	560	567	238		
SPSA	84	140	252	273	91	77		
YELE	105	70	385	966	126	21		
COSN	294	553	2170	2450	154	308		
OTHER	----	----	105	567	231	140		
TOTAL SHORE	1407	2310	5019	5628	1589	1029		

GBHE	2324	1281	2170	994	1358	1232		
GNHE	----	21	343	322	357	217		
GREG	----	21	---	42	14	28		
LBHE	----	----	14	28	---	7		
OTHER	42	35	35	91	35	7		
TOTAL WADER	2590	1631	2632	1477	1764	1491		

BAEA	----	7	49	35	70	49		
OSPR	63	42	35	49	70	105		

SUMMER

SPECIES	97	98	99	00	01	02		
CAGO	16002	19103	20895	13188	13636	16891		
WODU	17731	13692	9756	13979	14966	11865		
MALL	4606	2940	3010	2849	3472	1915		
ABDU	595	826	287	357	196	140		
HOME	350	210	21	238	210	7		
RNDU	----	----	----	----	---	----		
AGWT	----	14	---	14	---	---		
RUDU	----	----	----	----	----	---		
OTHER	----	7	----	---	7	----		
TOTAL	39284	36792	33971	30625	32487	30818		

AMCO	7	14	----	----	---	----		
PBGR	119	56	----	14	21	7		
BEKI	462	448	504	567	455	693		

KILL	1498	4368	2751	1057	1211	434		
SOSA	231	567	413	105	63	154		
SPSA	21	91	231	35	42	49		
YELE	21	154	189	14	7	----		
COSN	7	7	----	---	----	63		
OTHER	70	1015	511	504	477	7		
TOTAL SHORE	1778	6251	5019	1715	1800	707		

SUMMER - CONT.

SPECIES	97	98	99	00	01	02		
GBHE	3108	4025	3185	2310	2786	2671		
GNHE	630	1064	2464	1526	1652	1190		
GREG	630	2709	28	490	322	623		
LBHE	14	203	21	70	----	140		
OTHER	7	7	---	7	14	28		
TOTAL WADER	4998	8932	6356	4403	4774	4652		

BAEA	21	35	7	63	63	42		
OSPR	14	21	7	42	21	35		

FALL

SPECIES	97	98	99	00	01	02		
CAGO	57512	57099	58492	53067	56287	50120		
WODU	17353	10934	6839	12719	22190	11529		
MALL	9331	9142	5320	7980	9121	7497		
ABDU	6146	4802	4697	2954	2856	2520		
HOME	868	1624	2191	1848	770	1477		
RNDU	10682	6223	6580	8379	12089	11375		
AGWT	553	1981	1680	1104	637	420		
RUDU	1890	406	840	70	91	329		
OTHER	2562	616	1120	63	336	280		
TOTAL WATER FOWL	105014	92421	86919	88184	104377	85547		

FALL - CONT.

Species	97	98	99	00	01	02		
AMCO	133	7	133	35	56	—		
PBGR	644	273	581	385	252	126		
BEKI	679	721	490	791	735	567		

KILL	1687	3178	756	658	1029	448		
SOSA	56	70	7	21	49	63		
SPSA	28	14	---	---	39	35		
YELE	133	385	21	7	14	70		
COSN	21	679	203	105	91	63		
OTHER	28	112	14	14	259	7		
TOTAL SHORE	1974	4438	1001	805	1481	686		

GBHE	1253	1967	1050	1596	1706	1575		
GNHE	329	196	112	294	546	203		
GREG	203	1064	175	609	308	385		
LBHE	7	42	---	112	28	49		
OTHER	---	---	---	14	0	7		
TOTAL WADER	1792	3269	1337	2618	2588	2219		

BAEA	63	154	14	98	105	84		
OSPR	7	42	14	14	14	7		

TOTAL WATERBIRD DAYS USE 1997-2002

SPECIES	97	98	99	00	01	02		
CAGO	139707	170030	194208	132150	136136	135688		
WODU	49462	39977	29258	35154	48090	32767		
MALL	29717	32936	36120	35532	35938	37290		
ABDU	10329	13160	11039	986 3	8078	10458		
HOME	6146	9030	9527	8190	8001	9583		
RNDU	36644	33488	18396	26432	31206	38248		
AGWT	595	2660	2506	3799	1085	1778		
RUDU	1890	973	1834	434	105	364		
OTHERS	3206	1813	1351	623	644	742		
TOTAL WATER FOWL	277698	304067	304239	252191	269283	267660		

AMCO	896	42	161	182	273	21		
PBGR	1477	504	1078	1574	770	581		
BEKI	1547	1820	1603	1869	1841	1918		

KILL	4431	12124	6741	3129	2891	2576		
SOSA	602	994	1008	686	679	455		
SPSA	133	245	483	308	172	161		
YELE	259	609	637	987	147	140		
COSN	322	1470	2905	2688	252	945		
OTHER	56	1176	630	1085	967	147		
TOTAL SHORE	5803	16618	12404	8883	5108	5880		

TOTAL WATERBIRD DAYS USE 1997-2002 (CONT.)

SPECIES	97	98	99	00	01	02		
GBHE	6937	7714	7126	5299	6193	6339		
GNHE	1799	2387	2919	2142	2555	1610		
GREG	833	3794	889	1141	644	959		
LBHE	21	245	35	210	28	196		
OTHER	70	42	35	105	49	35		
TOTAL WADER	9639	14301	10423	8792	9469	9286		

BAEA	266	364	133	224	259	259		
OSPR	84	112	56	105	105	140		

WATERFOWL DAYS USE BY TRACT 1997-2002
NORTH TRACT

SPECIES	97	98	99	00	01	02		
CAGO	19551	23400	31857	16591	21375	20286		
WODU	19432	14623	12061	10737	15974	9303		
MALL	15444	14518	13783	18046	18718	16297		
ABDU	1099	1694	1232	1834	651	1078		
HOME	2072	2296	784	1659	1379	1057		
RNDU	3738	4109	4676	4592	1561	609		
AGWT	35	161	21	84	364	105		
RUDU	----	----	7	---	7	----		
OTHER DUCKS	133	14	168	203	112	35		
TOTAL WATER FOWL	61602	60843	64589	53746	60141	48770		

PBGR	560	112	364	399	42	49		
BEKI	812	784	602	854	1022	791		
KILL	847	4669	1225	1099	1155	1498		
GBHE	3843	3885	2926	2268	2714	2933		
GNHE	973	1743	1582	1225	1414	847		

CENTRAL TRACT

SPECIES	97	98	99	00	01	02		
CAGO	73437	81928	83559	48476	47649	52269		
WODU	17976	13867	12600	17521	20468	16674		
MALL	12173	21168	19362	11837	12117	17038		
ABDU	7165	9212	8351	5271	5236	7819		
HOME	3570	6167	8386	5985	5180	6937		
RNDU	6545	7112	4858	7903	6412	13174		
AGWT	560	2345	1344	1246	581	145		
RUDU	---	---	63	---	7	----		

OTHER DUCKS	616	868	350	294	231	637		
TOTAL WATER FOWL	122210	142807	138873	98533	97881	116004		

PBGR	637	119	630	840	462	462		
BEKI	632	924	966	798	595	973		
KILL	3059	6202	2310	1148	1323	371		
GBHE	2233	2765	3283	2464	2590	2569		
GNHE	770	497	1329	819	1092	728		

SOUTH TRACT

SPECIES	97	98	99	00	01	02		
CAGO	46361	64694	78792	67083	67109	63133		
WODU	12054	11487	4599	6846	11648	6790		
MALL	2100	2031	3062	5642	5103	3955		
ABDU	2065	2254	1456	2756	1995	1561		
HOME	504	567	174	427	1442	1589		
RNDU	26362	22267	5369	13937	27209	24465		
AGWT	---	---	700	2469	434	217		
RUDU	1890	966	882	434	28	364		
OTHER DUCKS	---	---	77	154	840	70		
TOTAL WATER FOWL	91910	104749	95112	99750	115878	102144		

PBGR	1477	504	84	245	273	70		
BEKI	140	133	49	137	224	154		
KILL	525	1253	3206	857	210	707		
GBHE	861	1064	959	123	889	837		
GNHE	70	147	98	105	49	3		